Operational Expense Study

On Behalf of the
Rural Independent Nebraska Companies

FCC WCB Meeting

April 20, 2011

CONSORTIA CONSULTING

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VantagePoint

Geographic Distribution of Telergee Study Data

Geographic Area If a state is identified in multiple regions, the company count was split evenly between the regions.	Count of Sample Companies	Distribution of Sample Companies	Distribution of All Rural Companies
Midwest - Ohio, Michigan, Indiana, Wisconsin, Illinois, Minnesota, Iowa, part of Missouri, North Dakota, South Dakota, Kansas, Nebraska, eastern Colorado	120	67%	51%
West - Western Colorado, Wyoming, Montana, Utah, California, Nevada, Idaho, Oregon, Washington, Alaska, Hawaii	39	22%	13%
Southwest - Western Texas, part of Oklahoma, New Mexico, Arizona, Nevada	7	4%	2%
South - Virginia, West Virginia, Kentucky, Tennessee, North Carolina, South Carolina, Georgia, Florida, Alabama, Mississippi, Arkansas, Louisiana, parts of Missouri, Texas, Oklahoma	11	6%	26%
Northeast - Maine, New Hampshire, Vermont, Massachusetts, Connecticut, Rhode Island, New York, New Jersey, Pennsylvania, Delaware, Washington DC and Maryland	1	1%	8%
Total	178		

Data Available in Telergee Study

- Geographic Data
  - Geographic Area, Square Miles Served and Exchanges
- Plant Data
  - Remaining Life of Wireline Plant, Net Regulated Wireline Plant, and Net Non-regulated Plant
- Customer and Employee Counts
  - Employees by Job Type, Broadband Customers, ILEC Access Lines and CLEC Access Lines
- Revenues
  - Wireline Operating Revenue and Non-regulated Internet Revenue
- Expenses
  - Plant Specific and Non-Specific Expenses, Customer Expenses, Corporate Expenses and Property and Other Taxes

NOTE: Not all companies submitted complete data for all of the items

The Data Covers a Range of Company Size and Density

Company Size (Access Lines)	Companies
Under 1,500	55
1,500 – 5,999	78
6,000 and over	45

Minimum: 176 Maximum: 49,842 Average: 5,773

Density (Access Lines per Square Mile)	Companies
Under 3	32
3 to 4.9	13
5 to 9.9	50
10 to 19.9	25
20 and over	32

Minimum: 0.12 Maximum: 979 Average: 21.17

Dependent Variable: Operating Expenses per Connection

Operational Expenses include *

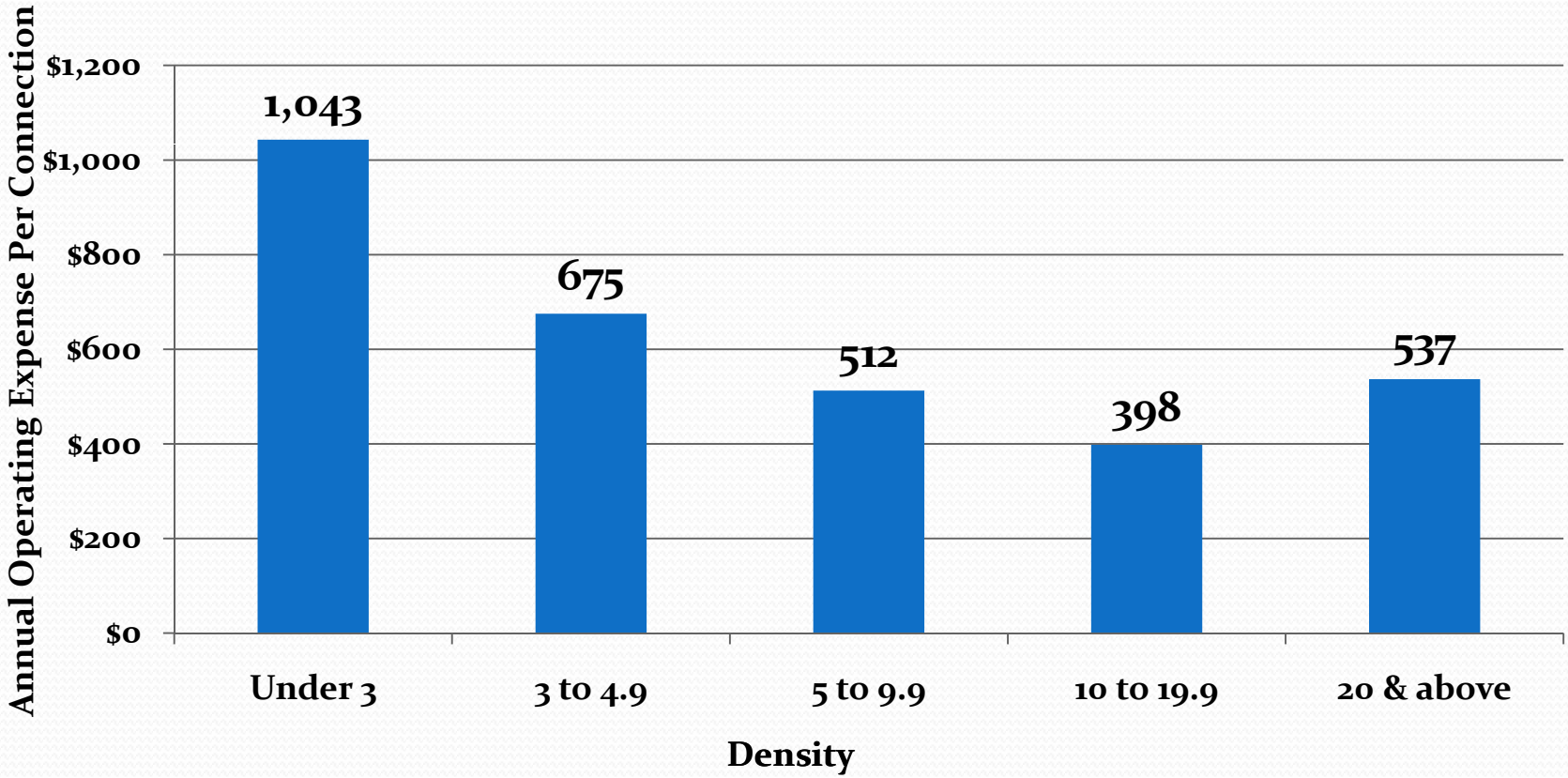
- Plant-Specific and Non-Specific Expenses + Customer Expenses + Corporate Expenses

Connections include

- Access Lines + Broadband Customers

*Depreciation and Taxes were excluded from Operating Expenses for the purposes of our analysis.

Operational Expense Cost Is Inversely Related to Density

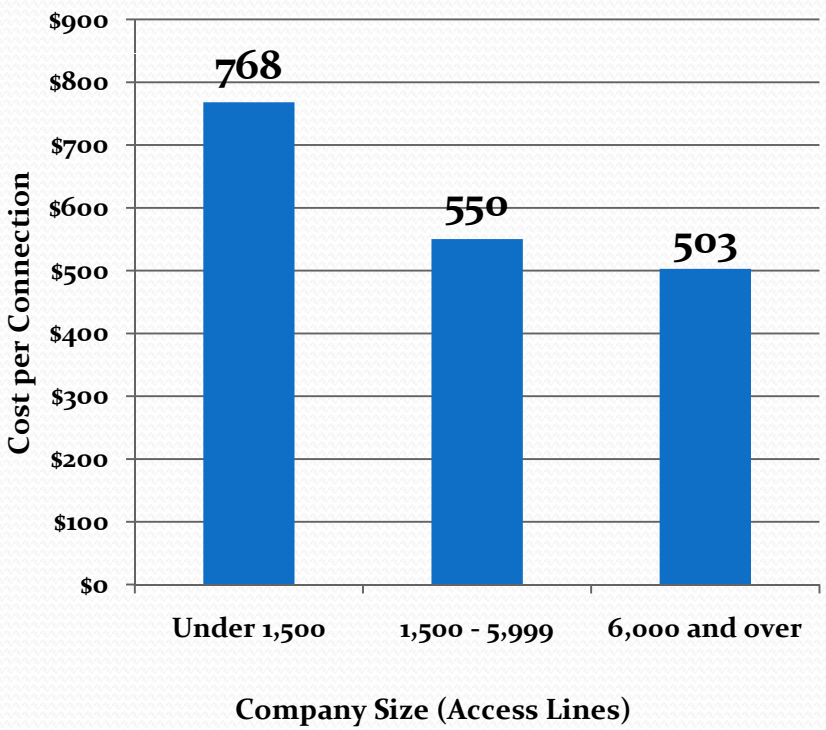


Cost Is Strongly Related to Location

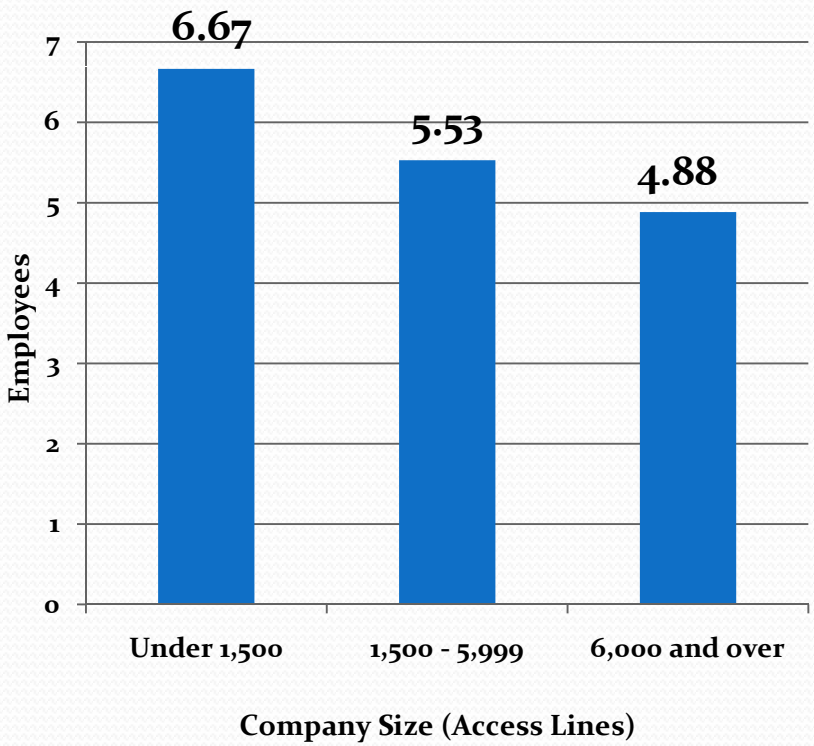
Region	Count of Companies Included	Average Operating Expense per Connection	Regional Percentage of Overall Average
Midwest	112	$473.46	84%
West	33	$1,033.34	184%
Southwest	5	$1,090.21	194%
South	7	$415.06	74%
Northeast	1	$404.21	72%
Overall Average	158	$560.75	100%

Cost Is Strongly Related to Economies of Scale

Average Op Ex per Connection



Employees per 1,000 Connections



Independent Variables Significantly Related to Operating Expense per Connection

- **Density**
  - Measured by Access Lines per Square Mile Served
  - Strong inverse relationship to dependent variable
- **Location**
  - Measured by a Regional Dummy Variable
  - Strong relationship to dependent variable
  - Refining this variable by trying an index that would capture cost of living differences (home , energy, rent, etc.) across the regions.
- **Size**
  - Measured by the Number of Access Lines
  - Negative relationship to dependent variable
- **Economies of Scale**
  - Measured by the Number of Employees per Connection
  - Strong positive relationship to dependent variable

Preliminary Operational Expense Regression Results

- Preliminary Results
  - The independent variables of Density, Location, Size and Economies of Scale resulted in stable test models.
  - The preliminary models have R-squared values in the range of 0.65 to 0.70.
- Next Steps
  - Improvement and expansion of the current data, plus refinement of the variables should enhance the robustness of the final regression equation.
  - We continue to analyze the data to identify the major operating expense determinants.

Update on Capital Expenditure Analysis

- Initial findings
  - *Linear density* - most important predictor of construction cost, accounting for 82.5% of the variation in cost.
  - Other GIS variables improved the accuracy of the cost equation to 86.7%.
    - Weather interruptions, the number of obstacles and difficult soil types all add cost.
    - The number of households is negatively related to cost. Thus, larger projects cost less per customer and smaller projects cost more.

Capital Expenditure - Additional Data Collection Efforts

Data Points Included	Original Post Gate Data	Updated Post Gate Data	Pending Data *
Projects Areas	167	254	at least 16
Rural	85	120	at least 3
Non-rural	82	134	at least 13
States	9	12	at least 2
ILECs	52	59	?
Engineering Firms	1	2	at least 5

* Not all new data received has been processed

Capital Expenditure - Next Steps

- Incorporate the new data into the analysis
  - More states and engineering firms will be included in the analysis
  - Additional GIS variables will be examined with the new data set to determine if the accuracy of the cost equation can be improved
- Expect that density will remain the most important predictor of construction cost

Rate-of-return Regulation with Constraints Addresses the FCC's Concerns

- Rate-of-return regulation has resulted in the deployment of broadband to rural areas.
- FCC should directly address concerns with rate-of-return regulation, rather than eliminate altogether.
- Our approach can address the FCC's concerns.
- Preserve rate-of-return regulation with reasonable constraints.
- Preliminary results indicate that we can predict OpX and CapX consistently for rate-of-return companies.